

General Disclaimer

One or more of the Following Statements may affect this Document

- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.
- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.
- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.
- This document is paginated as submitted by the original source.
- Portions of this document are not fully legible due to the historical nature of some of the material. However, it is the best reproduction available from the original submission.

07

571

II

7.9 - 100.40
CR - 157927

Applications of HCMM Satellite Data
to the Study of Urban Heating Patterns

Made available under NASA sponsorship
in the interest of early and wide dis-
semination of Earth Resources Survey
Program information and without liability
for any use made thereof."

Toby N. Carlson
Dept. of Meteorology
The Pennsylvania State University
University Park, PA 16802

(E79-10040) APPLICATIONS OF HCMM SATELLITE
DATA TO THE STUDY OF URBAN HEATING PATTERNS
Quarterly Report, Sep. - Nov. 1978
(Pennsylvania State Univ.) 3 p
HC A02/MF A01

N79-13447

Unclas
CSCI 08B G3/43 00040

December 1, 1978

Fourth Quarterly Report - Sept. - Nov., 1978

HCMM-001

Prepared for:

Goddard Space Flight Center
National Aeronautics and Space Administration
Greenbelt, MD 20771

RECEIVED

DEC 01 1978

SIS/902.6

Summary of Research

Data for a series of U-2 passes made over St. Louis 25 May 1976 were processed using the TOBYGRAF System and an analysis of temperature was drawn over the urban area. A method designed to simultaneously correct aircraft radiometric scan data for distortion due to varying scan angle and water vapor path length was included in the software package for extracting the aircraft scan data. Additional scan data from the NASA WB57 aircraft for a pair of day and night flights over St. Louis on 14 June 1978 have been received and are currently being analyzed following a period in which programs to extract this data were written and tested. Figure 1 shows the surface temperature analysis for the U-2 flight.

Data extraction routines were tested for one sample HCMM tape. Our present analysis system seems to be functioning well for HCMM data but at present we are just beginning to operate with a single pair of HCMM day and night passes over Los Angeles. Other tapes have been ordered.

Further improvements in our surface heat flux/temperature model have been made, particularly in regard to initialization procedures for wind and temperature. The model now appears to be working quite satisfactorily.

ST LOUIS, MO
SURFACE TEMPERATURE (°C)
25 MAY 1978: 1640 GMT
2 KM



Figure 1

ORIGINAL PAGE IS
OF POOR QUALITY